

# INTRODUCTION TO BRAIN SCIENCE FOR BUSINESS

MKTG 7370, January 2024 MBA Opportunity Course

Location: 255 Jon M. Huntsman Hall

The Wharton School, University of Pennsylvania

## COURSE SYLLABUS

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Instructor
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TA
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## **Overview**

Can brain science help business? At first blush, this might seem like a bridge too far. After all, the efficiencies of the market virtually guarantee accurate asset pricing, marketing research and focus groups can test the efficacy of advertising, effective leadership can stimulate innovation and productivity, and sophisticated analytics can leverage big data to improve organizational structure to maximize return on investment. A deeper look, however, provokes the idea that brain science has enormous potential to inform business. We now know the basic architecture of the decision process in the human brain, from identification of choice options to the calculation of their utility, to selecting one for consumption, and learning from this experience. We are also beginning to understand how fundamental economic principles like risk, ambiguity, and volatility shape these processes, and why these factors seem to influence different people in different ways and in different choice contexts. Importantly, neuroscience provides a powerful tool for understanding the private reasons, such as emotional responses or the influence of others, people make the choices they do- reasons they themselves may not be aware of or even understand. Neuroscience offers the potential to unlock the mechanisms underlying what many people consider to be the keys to the future of business, including creativity and innovation, empathy and connecting with others, social awareness and the common good, how people use information to guide decision making, and the experience and impact of online vs. live interaction and pedagogy. New developments, including biometrics, implantable and wearable brain interfaces, genomics, proteomics, metabolomics, and the human microbiome, offer the opportunity for enhanced precision not only in marketing and finance, but also in the talent identification and the development of full human potential.

## **Goals:**

This course will provide an overview of contemporary neuroscience and its applications to business. Students will be introduced to the basic anatomy and physiology of the brain and become familiar with important techniques for measuring and manipulating brain function. The course will then survey major findings in neuroscience with applications to business, including selective attention and advertising; valuation and marketing; decision making and the tyranny of choice; learning, innovation and creativity; learning and performance; and social influence, team-building, and leadership. The course will end with a discussion of the future of brain science in business, and a final session where teams will pitch new neuroscience applications for business.

## **Format:**

The course will be offered in person, with additional self-directed independent study and an online final exam. Generally, each class will consist of an interactive lecture, followed by team-based work to develop a business application based on the material presented in class. Students will be randomly assigned to teams and all teams will be required to present once during the course. We will also include video interviews with speakers from industry who will talk about their experience working at the intersection of neuroscience and business. After the lectures and team presentations, students will have a day and a half of independent study time before the online exam is posted.

## **Grading:**

There are two major assessments for the course. One will be a team-based pitch of a business application with foundations in neuroscience. The second will be a cumulative final exam that seeks

to test your understanding of the course material through practical application. Though the assessments will not be curved, your final grades will be re-weighted around a 3.5 GPA, as per Wharton MBA program requirements. This class can be taken pass/fail. If you need accommodations, please be sure to let the TA know in advance and coordinate with the Weingarten Learning Resources Center (more information is below). More information on the capstone pitch session and exam are below. Additional information will be available closer to the date. Please email the TA for any questions or concerns. Please refer to the course itinerary for the exam date.

Class Participation (including peer assessment)	10%
Team-Based Final Pitch Presentation (Shark Tank)	45%
Final Assessment	45%

**\*final class distribution will be re-weighted around 3.5 GPA**

### **Readings:**

There are two required books for the course, both of which should be read before the course begins: “*The Leader’s Brain*” (henceforth LB) by Michael L. Platt (yours truly) and published by Wharton School Press. There is both an eBook (\$12.99) and a paperback (\$18.99) version available. The second required book is Unit V *Neuroscience* (henceforth NS) by Purves et al. eds. (including yours truly), published by Oxford University Press. There are also a number of additional readings, including primary scientific articles and popular media, which will be posted on Canvas.

### **Unrestricted use of Generative AI permitted:**

Within this class, you are welcome to use AI models (ChatGPT, GPT, DALL-E, Stable Diffusion, Midjourney, GitHub Copilot, and anything after) in a totally unrestricted fashion, for any purpose, at no penalty, except for the final exam. However, you should note that all large language models still have a tendency to make up incorrect facts and fake citations; code generation models have a tendency to produce inaccurate outputs; and image generation models can occasionally come up with highly offensive products. You will be responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit regardless of whether it originally comes from you or an AI program. If you use an AI program, its contribution must be acknowledged in the assignment; you will be penalized for using an AI program without acknowledgement. Having said all these disclaimers, the use of an AI program is encouraged, as it may make it possible for you to submit assignments with higher quality, in less time. The university's policy on plagiarism still applies to any uncited or improperly cited use of work by other human beings, or submission of work by other human beings as your own.

### **Academic Integrity:**

Please re-familiarize yourself with the students’ guide to Academic Integrity at Penn (<http://www.upenn.edu/academicintegrity/index.html>) and the Code of Academic Integrity: ([http://www.upenn.edu/academicintegrity/ai\\_codeofacademicintegrity.html](http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.html)). You may and are encouraged to discuss class topics with other students in the class. However, your individual and

group assignments, responses, and contributions to class are to be your own original work and must truthfully represent the time and effort you apply. Consult with the instructor if you have any questions about academic integrity expectations for this class. If you are unsure whether your work constitutes a violation of the Code of Academic Integrity, it is your responsibility to clarify any ambiguities.

### **Policies:**

*Accommodations:* The University of Pennsylvania provides reasonable accommodations to students with disabilities who have self-identified and been approved by the office of [Student Disabilities Services](#) (SDS). If you have not yet contacted SDS, and would like to request accommodations or have questions, you can make an appointment by calling SDS 215-573-9235. The office is located in the [Weingarten Learning Resources Center](#) at Stouffer Commons 3702 Spruce Street, Suite 300. All services are confidential.

### **Shark-Tank - Team Pitch Presentations:**

At the beginning of the week, you will be randomly assigned into groups to develop and pitch a neuroscience-applied business idea. Your businesses should utilize the neuroscience concepts you've learned through the class. At the end of the day Thursday, your team will present a 5-7 minute "Shark Tank" style pitch to the rest of the course. Pitches and business ideas will be graded based on the criteria in the table below. In addition to your pitch deck, your team will be asked to submit a brief (250 word) written summary of your business idea. The pitch deck and summary must be submitted by 11:59 PM on the day of the pitches. In addition to the final pitch grade, you will be asked to submit peer evaluations for your team members that will be incorporated into your participate grade.

<b>Criteria:</b>	<b>Maximum Points:</b>
<i>Opportunity:</i> The proposed idea has gone through careful diligence both qualitatively and quantitatively to sensitize whether or not there is value and a potential market and/or audience for the product or service.	20
<i>Business Idea:</i> The idea being pitched has effort put into it and fits well into the viable opportunity. There is a clear and understandable linkage between neuroscience and where the business idea will go.	20
<i>Brain Science:</i> The business idea or application for the proposed company has a clear and direct tie to one or multiple well-established and explained neuroscience concepts taught in the course.	20
<i>Impact:</i> There is a sizeable impact being forecasted by the product or service being pitched. Assessed for quality and value creation being driven to a community or population. A measureable component of the business has a tie to ESG.	20

<i>Ethics:</i> The team has carefully considered the business idea's social, psychological, and ethical ramifications if developed. An assessment of the potential consequences and mitigants for them has been conducted.	20
<b>Total Points:</b>	100

### **Final Exam:**

The final exam for this course will be taken online via Canvas. Once you have begin, you will have 3 hours to complete the exam. Be sure you have a reliable internet connection before starting the exam to prevent any answers from being lost. The cumulative final exam will test your understanding of the course material through practical application. The questions typically follow a situation-answer style rather than rote memorization. However, it will be important to be familiar with specific, critical neuroscience topics such as brain anatomy and function. The exam will not be curved, however questions will be re-visited by the TA for omission if deemed necessary according to the results of the exam. Accomodation requests should be made through the Weingarted Learning Resources Center (see information above).

<b>Final Assessment</b> <b>01/12/24</b>
<p>WHERE: Online via Canvas</p> <p>WHEN: Opens 1:00 PM on Friday 1/12/24 – Closes Monday 1/15 11:59 PM</p> <p>LENGTH: 3 hours</p>

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**Course Schedule (1/8/24 - 1/12/24)**

<b>Time</b>	<b>Monday 1/8/24</b>	<b>Tuesday 1/9/24</b>	<b>Wednesday 1/10/24</b>	<b>Thursday 1/11/24</b>	<b>Friday 1/12/24</b>
<b>Location</b>	255 JMHH	255 JMHH	255 JMHH	255 JMHH	Remote
9:00 – 10:00	Introduction to the Course	Neuromarketing and Brand Strategy	Harnessing the Brain's Innovation Engine	Brainstorming Pitch Ideas	Study time on your own
10:15 – 11:15	How Brains Work, How to Measure Brain Activity, and How to Manipulate It	Driving Performance through Learning	The Future of Neuroscience in Business: Ethical, Legal, and Societal Implications		
11:30 – 12:00	Fast Friends Team-Building Exercise	Brainstorming Pitch Idea			
12:15 – 1:00	Lunch	Lunch	Lunch	Lunch	Lunch
1:00 – 2:00	Decision Making and the Brain	Building Connections with the Social Brain	Brainstorming Pitch Ideas	Shark Tank: Team-based Final Pitches of Neuro Applications	Final Exam open
2:15 – 3:14	Attention and Decision Making	The Secrets of Team Chemistry			
3:30 – 4:00	Brainstorming Pitch Ideas	Brainstorming Pitch Ideas			